

ABSTRACT OF THE DISCLOSURE

An embodiment of the present invention is a technique to utilize water soluble polymer-containing flux to provide protection to low-k ILD of flip chip devices during flip chip assembly. A flux which includes at least a solvent, a water soluble monomer or polymer is applied on a substrate. A die is placed on the substrate, the die is reflowed in an oven at a reflow temperature to redistribute stress caused by coefficient thermal expansion (CTE) mismatch between the substrate and the die. The reflow temperature is higher than a melting point of the polymer.